



Information available anytime, anywhere.

This has become the battle cry of the beleaguered masses of workers in today's information-based society. A mother or father tries to balance work and parenting by working from home a few days each week. A busy executive needs a file from one of her corporate file servers while on an airplane. Desktop users need instant problem resolution from their support department and around the clock, corporate workers depend upon remote access to information from hotel rooms, from their cars via cellular phones, or from home.

Several forces currently drive the move toward remote communications and remote computing. These include escalating real-estate costs, environmental concerns, and the need for increased worker productivity. Advances in software technology, such as Windows 200, and communication technology, as with the Internet, also spur this increase in remote communications.

Telecommuting, the practice of setting up home offices for employees with appropriate resources for computing and communication, is on the rise. It involves partial or total substitution of telecommunications technology for the commute to and from the primary workplace. Computers, faxes, advanced communications links, and dial-up access enable this new work paradigm.

There are approximately 20.1 million telecommuters nationwide according to a New York-based research firm. Gartner Group Inc., a Stamford, Connecticut, information technology advisory firm, predicts that more than 30 million U.S. workers will be telecommuters by this year.

One factor driving telecommuting and the need for remote communications is the cost of corporate real estate. An office renting for \$18 per square foot in Dallas may go for \$36 in New York. Locations of equal value and quality may go for \$63 per square foot in Paris and \$155 per square foot in Tokyo.

Knowledge workers often have information-driven tasks that can be performed in many different places -- at home, in hotels, or even from a car. The idea of maintaining an expensive central location is giving way as "virtual offices" implement telecommuting or "hoteling."

In "hoteling," a practice becoming more common, office space is consolidated by eliminating private offices for all but the highest level of management and key support staff. Because so many workers today are more mobile and rarely use their offices a full eight hours a day, corporations ask them to reserve space to work as they would reserve a room for a hotel. A coordinator tracks requests for office space,

computing equipment, and communications tools. Thus, fewer offices are used for the same number of workers.

Environmental concerns also drive the move to remote communications. Government agencies and corporations recognise that telecommuting reduces gasoline consumption, auto emissions, and traffic congestion. Many states are implementing telecommuting to meet the requirements of the Clean Air Act of 1990.

Many companies implement remote communications to provide better customer service, especially within the computer industry. Perhaps the most traditional remote access setting is the help desk. Help desk staff can use remote control software to correct problems on customer PCs across town or miles away in another state.

According to Telecommute America!, a nationwide public awareness program initiated by AT&T and government agencies, the following steps are necessary to implementing a successful telecommuting program:

- Determine the business tools you require to work productively away from your traditional office setting. Plan to work on tasks that can be accomplished using those resources.
- If necessary, and approved by your supervisor, locate office services locations near you for faxing, copying, and other services that you may require.
- Decide how you will stay in contact with co-workers, customers, clients, and the main office (using a combination of telephone, fax technology, electronic mail, computer/modem links, and voice messaging).
- Investigate and plan how you will handle your messaging needs.
- Make sure that your co-workers and customers know how to reach you.
- Follow up with your supervisor to suggest setting up a pilot program within your organisation.

Increased use of the Internet prompts more communication. Estimates on Internet users range from 11 million to 50 million people who currently use or will soon use the Internet. A recent survey estimates one in 5 U.S. adults, have used the World Wide Web.

This new communications medium, the Internet, is also prompting new ways of working together and sharing information at great distances. With an average cost of around \$20 per month for home users, connecting to the Internet has never been easier or more affordable. In most instances, accessing files at distant remote locations is now more economical using the Internet than by a long

distance call. Most Internet service providers provide local access numbers for connecting to the Internet. Many offer affordable, fixed-monthly fees for services, which has helped propel the growth rate of the Internet. However, challenges still exist when utilising the Internet for remote communications, especially in the areas of remote control over the Internet. More information on these challenges can be found in the remote control section of this document.

Improvements in multitasking and performance were made with the release of Windows 95. The largest improvement can be seen when using programs designed for Windows 95 or more recent derivations. Older programs communicate with the operating system in "16 bit" mode, meaning that at any given point in time, a task is only executing at one spot in its code. Newer "32 bit" programs can take advantage of process threads, which are separate tasks executing at different spots in the code at the same time. One way this can be implemented is in a word processing program. You can send your print job to the printer and the job can run in the background, returning control back to you more quickly.

Networking was also designed into Windows 95. Simpler installation and setup for dial-up networking is now available for the mobile professional and those working from home. Thanks to Plug-and-Play and TAPI, the Telephony Application Programming Interface, network adapters and modems are now automatically detected and installed, making setup and installation a snap. Telephony refers to telephone call management such as setting up and controlling a telephone call. In most instances, the only information needed to make a dial-up connection is the telephone number, a user ID, and a password. Those dialling up to the Internet through a service provider must also supply TCP/IP information (such as a name server addresses) furnished by their service.

Using remote access software, workers can read e-mail, troubleshoot problems and even transfer files to and from office computers or corporate LANs. Several types of remote communications are available to facilitate this work trend. The predominant methods are remote control and remote node technology. Each differs significantly from each other. Each offers certain advantages that lend themselves to certain applications.

Using e-mail alone does not constitute complete communications for the mobile or remote user. What happens when that mobile user is in a hotel room in Atlanta and needs to change some of the figures in a spreadsheet stored on a file server in New York at 3 a.m.? Remote control and remote node technology help fill this void.

Using remote communications once appeared much slower than the speed of accessing data while directly connected to a LAN. No longer. Continuous improvements in speed and reliability made over the past several years now give remote users near equivalent speed and functionality they enjoyed in the office. These developments can be attributed to several areas, especially improvements in higher speed modems, and improvements in remote access software.

Remote Control

Remote control allows a person to connect to a PC or PCs on the LAN, from a remote location, such as from home, other

company locations and so on. The office machine is typically called the "host or Client" computer, the home machine is called the "remote or Control". The link between the two PCs generally occurs using standard dial-up telephone lines, ISDN over the internet or an existing network connection. The user at the remote PC works as if present at the office -- all keyboard, mouse and screen operations from the remote PC control the host. All the same network resources are available from the remote PC as are available in the office.

When using remote control, the application software runs on the PC at the office, not on the home PC. The only communication between the office and home PC is keyboard and mouse activity, and screen updates. This minimizes the amount of data carried across the phone lines. With recent improvements in modem technology and better data compression in software, remote control sessions can now give the remote user response time similar to what they enjoy at the office.

Some remote control software vendors are moving into the Internet arena, using it as a means of controlling remote PCs. This poses certain challenges and hurdles for users. To reliably use a remote control session over the Internet, you need confidence that certain issues have been resolved -- namely security, intruder detection, and ease-of-use.

The Internet grew up as an open environment, based on the concept of free flow of information between mostly governmental and educational resources. In the early days, when fewer people had access to the Internet, security was not a big concern. Today, this lack of security can jeopardise your information when using remote control sessions.

When using remote control over the Internet, look for solutions that employ multiple levels of security, and for ones that encrypt your data before it's placed on the Internet. Would-be Internet eavesdroppers can be thwarted or stopped in this way. The best products offer ways to track security breaches via mechanisms like security logs.

Ease-of-use is another problem when using the Internet and remote control software. When dialling up to most Internet service providers (ISPs), the caller is issued a temporary address good for that session only. This dynamic addressing poses problems when you're wanting to control a machine on the Internet. How do you determine the address of the host machine using a dynamic address? Most solutions today require dialling into a server to determine the host's dynamic address, or having someone tell it to you for that session.

Applying Remote Control

Several applications lend themselves towards remote control, especially training and support. End user's machines can be operated from a support person's PC without leaving their desks. For example, a help desk professional at a large corporation can connect to a user on another floor, solving hardware or software problems using remote control. Help desks can now remotely observe problem situations and correct them, adjusting Windows INI files and settings, for example. Problems on PCs at remote locations can also be diagnosed using remote control, eliminating expensive travel costs to those sites.

Using remote control in training situations can help increase productivity. A trainer can remotely connect to a student's machine, control the mouse, and demonstrate the steps to accomplish a function in the student's software. The trainer can then observe the student walking through the same steps remotely, without having to be present in the room with the student.

Some types of remote control software allow a trainer to connect to several separate PCs, potentially on opposite sides of a country, enabling simultaneous training from one instructor that would have required multiple trainers in the past. This will help trainers do away with travel to and from remote locations, getting more productive use of their time. Remote control is also useful when upgrading a department to a new software or operating system revision. For example, users running Windows 95, who might be unfamiliar with Windows 2000, can connect and control a Windows 2000 machine from their Windows 95 machine, to start getting used to how things will work prior to the departmental upgrade.

Remote control is also a good fit when PC applications generate a great deal of network traffic. An example is an application requiring a lot of data transmitted to the PC, such as data from file or database servers. Since the data is

shipped to the office PC, none of the database traffic is communicated over the slow phone line.

Remote control is generally speedier and more versatile than remote node. Remote control can be used exclusively for remote access instead of remote node, or can be used alongside it. Remote control can also be used to perform tasks that remote node cannot, such as remote support and training. It also can be used for collaborative work between sites, which is difficult with remote node technology.

What if you don't already have a remote access solution in place at your organisation?

Do you really need one?

Answer the following questions, tallying up your answers, to determine whether you and/or your company are good candidates for a remote communications solution.

- > Do you spend a significant amount of your time working away from your office?
- > Do you find yourself working at odd hours of the day (or night)?
- > Do you work from home? Or would you like to?
- > Do you have corporate applications that will not run successfully on your home or portable PC?
- > Do you maintain both a desktop and a portable PC?
- > Do you have to provide customer support or service to various remote locations?
- > Do you provide support to branch or remote offices that don't have dedicated IS staff?
- > Do you need to connect to office resources like printers, databases, or CD-ROMs from a remote location or from home?
- > Do you spend a significant portion of the day planning, writing, editing, or reviewing e-mail?
- > Do you spend a significant portion of the day performing other tasks that require concentration and focus?
- > Do you need access to a high-speed connection to the Internet?

If you answered yes to four or more of these questions, you're definitely a candidate for remote communications.

Is your organisation a candidate for remote communications?

- > Do you have more than 10 users connecting into your corporate computer resources?
- > Do you have remote users who need to print to an office printer?
- > Do you have branch offices in remote locations?
- > Do any of these branch offices require access to your office network resources like printers, applications, or databases?
- > Does your organisation provide customer support or services to various remote locations?
- > Do you need your IT support staff to be available to resolve problems immediately ?
- > Does your organisation have applications that will not run successfully from older home or mobile computers?
- > Is your organisation obligated to comply with the Clean Air Act, reducing the number of vehicles commuting to work?
- > Does your organisation have remote users needing access to legacy information on mainframes or minicomputers?
- > Does your organisation need to provide dial-out access to online services or the Internet?
- > Do you have a mixed environment at your organisation with Windows 9x, NT and 2000 running?

If you answered yes to four or more of these questions, your organisation can benefit from implementing a remote communications strategy.

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